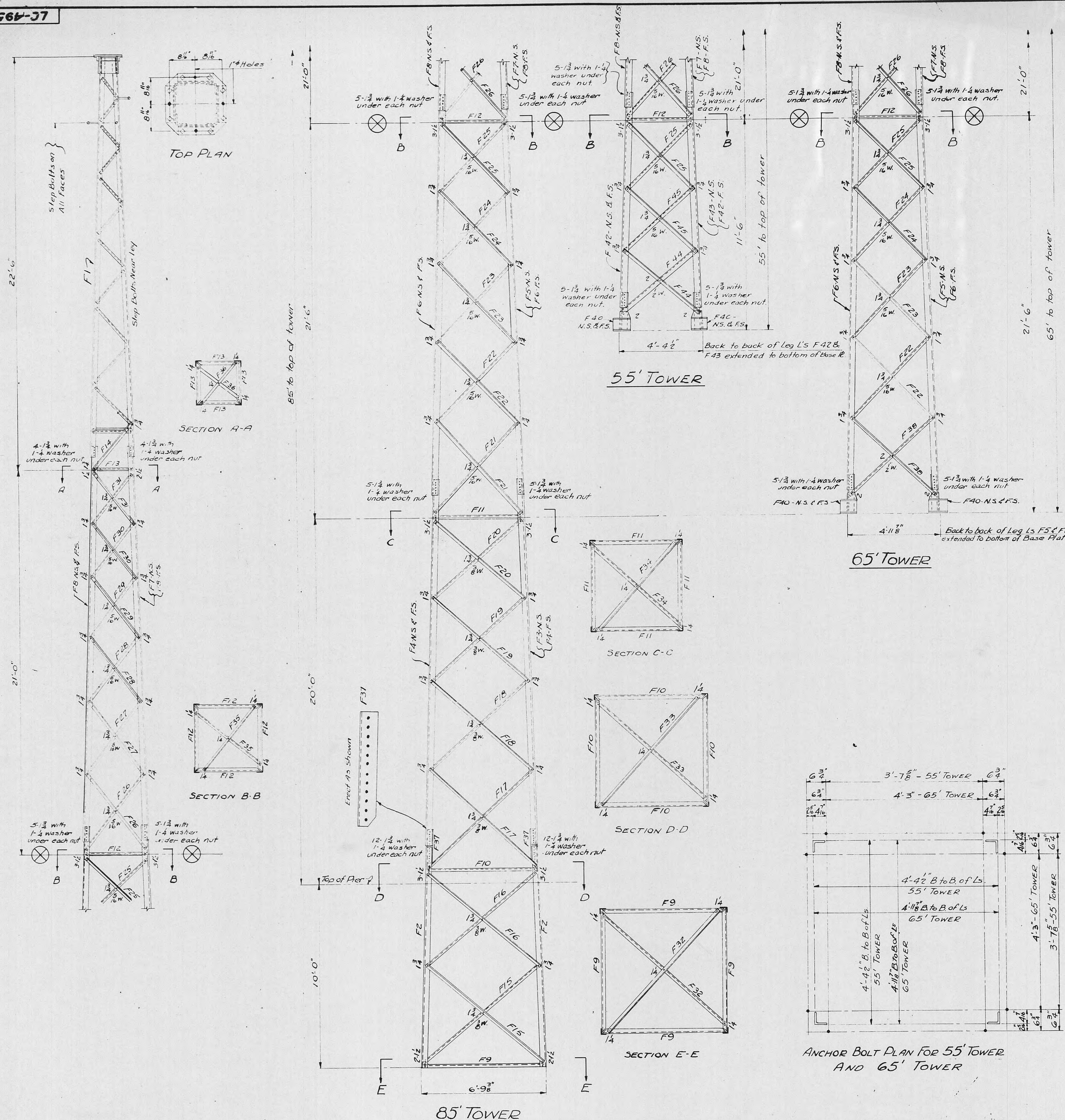




| BILL OF MATERIAL |                   |                           |          |        | BILL OF MATERIAL |                   |                                 |          |        |
|------------------|-------------------|---------------------------|----------|--------|------------------|-------------------|---------------------------------|----------|--------|
| MARK             | NO. REQUIRED      | DESCRIPTION               | LENGTH   | WEIGHT | MARK             | NO. REQUIRED      | DESCRIPTION                     | LENGTH   | WEIGHT |
|                  | FOR ONE 55' TOWER |                           | FT. INCH | EACH   |                  | FOR ONE 65' TOWER |                                 | FT. INCH | EACH   |
| F1               | 1                 | Shop Welded Section       |          |        | F21              | 8                 | L-1/2 x 1/2 x 1/2               | 6        | 7.8    |
|                  | 1                 | L-3/2 x 3/2 x 1/2         | 21       | 10.4   | F22              | 8                 | L-1/2 x 1/2 x 1/2               | 6        | 2.3    |
|                  | 3                 | L-3/2 x 3/2 x 1/2         | 21       | 10.4   | F23              | 8                 | L-1/2 x 1/2 x 1/2               | 5        | 10.2   |
|                  | 4                 | L-1/2 x 1/2 x 1/2         | 2        | 2.4    | F24              | 8                 | L-1/2 x 1/2 x 1/2               | 5        | 6.8    |
|                  | 4                 | L-1/2 x 1/2 x 1/2         | 2        | 10.8   | F25              | 8                 | L-1/2 x 1/2 x 1/2               | 5        | 1.8    |
|                  | 4                 | L-1/2 x 1/2 x 1/2         | 2        | 9      | F26              | 8                 | L-1/2 x 1/2 x 1/2               | 5        | 4.8    |
|                  | 4                 | L-1/2 x 1/2 x 1/2         | 2        | 6.2    | F27              | 8                 | L-1/2 x 1/2 x 1/2               | 4        | 1.2    |
|                  | 4                 | L-1/2 x 1/2 x 1/2         | 2        | 4.1    | F28              | 8                 | L-1/2 x 1/2 x 1/2               | 4        | 7.4    |
|                  | 4                 | L-1/2 x 1/2 x 1/2         | 2        | 2      | F29              | 8                 | L-1/2 x 1/2 x 1/2               | 4        | 3.8    |
|                  | 4                 | L-1/2 x 1/2 x 1/2         | 2        | 0.4    | F30              | 8                 | L-1/2 x 1/2 x 1/2               | 3        | 1.8    |
|                  | 4                 | L-1/2 x 1/2 x 1/2         | 1        | 10.2   | F31              | 8                 | L-1/2 x 1/2 x 1/2               | 3        | 7.8    |
|                  | 4                 | L-1/2 x 1/2 x 1/2         | 1        | 8.3    | F32              | 2                 | L-1/2 x 1/2 x 1/2               | 9        | 1.9    |
|                  | 4                 | L-1/2 x 1/2 x 1/2         | 1        | 7.8    | F33              | 2                 | L-1/2 x 1/2 x 1/2               | 6        | 4.4    |
|                  | 4                 | L-1/2 x 1/2 x 1/2         | 1        | 5.3    | F34              | 2                 | L-1/2 x 1/2 x 1/2               | 8        | 1.3    |
|                  | 4                 | L-1/2 x 1/2 x 1/2         | 1        | 4.2    | F35              | 2                 | L-1/2 x 1/2 x 1/2               | 4        | 7.4    |
|                  | 4                 | L-1/2 x 1/2 x 1/2         | 0        | 11.2   | F36              | 2                 | L-1/2 x 1/2 x 1/2               | 2        | 10.2   |
|                  | 2                 | Rods 3/4"                 | 3        | 2.3    | F37              | 4                 | L-4 x 4 x 1/2                   | 1        | 10     |
|                  | 4                 | Plates 11 x 4             | 1        | 10.4   | F38              | 8                 | L-1/2 x 1/2 x 1/2               | 6        | 1.3    |
|                  | 1                 | Plate 20 x 4              | 1        | 8      |                  |                   |                                 |          |        |
|                  | 8                 | Bolts 5/8" x 1/2" hex nut | 0        | 1.3    | F40              | 4                 | Shop Welded Bases               |          |        |
|                  | 12                | Bolts 5/8" x 1/2" hex nut | 0        | 1.2    |                  | 4                 | L-4 x 4 x 1/2                   | 2        | 0.2    |
| F2               | 4                 | L-4 x 4 x 1/2             | 12       | 0.8    |                  | 4                 | L-7/8 x 7/8 x 1/2 (Clip on B)   | 1        | 29.4   |
| F3               | 1                 | L-4 x 4 x 1/2             | 20       | 0      |                  | 8                 | Plates 5 x 2                    | 0        | 7      |
| F4               | 3                 | L-4 x 4 x 1/2             | 20       | 0      |                  | 24                | Plates 5 x 2                    | 0        | 7.8    |
| F5               | 1                 | L-4 x 4 x 1/2             | 21       | 9.4    |                  | 4                 | Plates 12 x 8                   | 1        | 0      |
| F6               | 3                 | L-4 x 4 x 1/2             | 21       | 9.4    |                  |                   |                                 |          |        |
| F7               | 1                 | L-4 x 4 x 1/2             | 21       | 7.2    | F41              | 8                 | Anchor Bolts                    |          |        |
| F8               | 3                 | L-4 x 4 x 1/2             | 21       | 7.2    |                  | 8                 | Rods 1/2"                       | 9        | 6      |
| F9               | 4                 | L-2 x 2 x 1/2             | 6        | 6.3    |                  | 16                | Hex nuts for 1/2" bolt          |          | 0.91   |
| F10              | 4                 | L-2 x 2 x 1/2             | 5        | 11     |                  |                   |                                 |          |        |
| F11              | 4                 | L-2 x 2 x 1/2             | 4        | 8.3    |                  | 42                | Shop Bolts 3/8" x 1/2" hex nuts | 7        | 1.1    |
| F12              | 4                 | L-2 x 2 x 1/2             | 3        | 4.8    |                  | 123               | Washers 1/4 x 1/2 hole          |          | 0.062  |
| F13              | 4                 | L-1/2 x 1/2 x 1/2         | 2        | 2.4    |                  | 35                | Washers 1/4 x 1/2 hole          |          | 0.078  |
| F14              | 4                 | L-1/2 x 1/2 x 1/2         | 3        | 2.3    |                  | 5                 | Washers 1/4 x 1/2 hole          |          | 0.125  |
| F15              | 8                 | L-2 x 2 x 1/2             | 8        | 3.6    |                  | 26                | Washers 1/4 x 1/2 hole          |          | 0.094  |
| F16              | 8                 | L-2 x 2 x 1/2             | 7        | 11.6   |                  | 11                | 3/8" Bolts 3/4" hex nut         | 13       | 0.31   |
| F17              | 8                 | L-2 x 2 x 1/2             | 7        | 9.4    |                  | 40                | do.                             | 12       | 0.33   |
| F18              | 8                 | L-2 x 2 x 1/2             | 7        | 3.8    |                  | 233               | do.                             | 13       | 0.36   |
| F19              | 8                 | L-2 x 2 x 1/2             | 6        | 11.4   |                  | 13                | do.                             | 2        | 0.38   |
| F20              | 8                 | L-2 x 2 x 1/2             | 6        | 6.6    |                  |                   |                                 |          |        |
| F42              | 3                 | L-4 x 4 x 1/2             | 11       | 9.8    |                  |                   |                                 |          |        |
| F43              | 1                 | L-4 x 4 x 1/2             | 11       | 9.8    |                  |                   |                                 |          |        |
| F44              | 8                 | L-1/2 x 1/2 x 1/2         | 5        | 2.2    |                  |                   |                                 |          |        |
| F45              | 8                 | L-1/2 x 1/2 x 1/2         | 5        | 0.8    |                  |                   |                                 |          |        |

NOTES:

Material to be galvanized. Marks to be die-stamped before galvanizing. All holes 1/8" unless noted. All assembly bolts 5/8" with square heads and hex nuts, std. thds. Bill of material includes 10% excess bolts.

Tower is designed for 5000# pull at top in any direction plus 50% overload.

REFERENCES:

Foundation-55' G.W. Tower - MC-33225  
Foundation-65' G.W. Tower - MC-6165  
Foundation-85' G.W. Tower - S-C-1279

This drawing supersedes MC-1259

TENNESSEE VALLEY AUTHORITY  
DIVISION OF POWER ENGINEERING AND CONSTRUCTION

**SUBSTATIONS GENERAL**  
**55, 65 & 85 FT. GROUND WIRE TOWERS**  
**ERECTION DIAGRAM**

|       |                             |         |          |    |
|-------|-----------------------------|---------|----------|----|
| 4     | Added 55' Tower.            | 9/28/54 | W.H.F.H. | OK |
| 3     | Traced, corrected bolt mts. |         |          |    |
|       | W/ 65' Tower was 4640       |         |          |    |
|       | W/ 85' Tower was 6345       | 6/17/53 | O.B.S.   | OK |
| 2     | 3 step Bolts Added at top   | 7/12/49 | O.K.C.   |    |
| 1     | Anchor Bolts                | 12/9/48 | J.C.H.   |    |
| ISSUE | REVISION                    | DATE    | SIG.     |    |

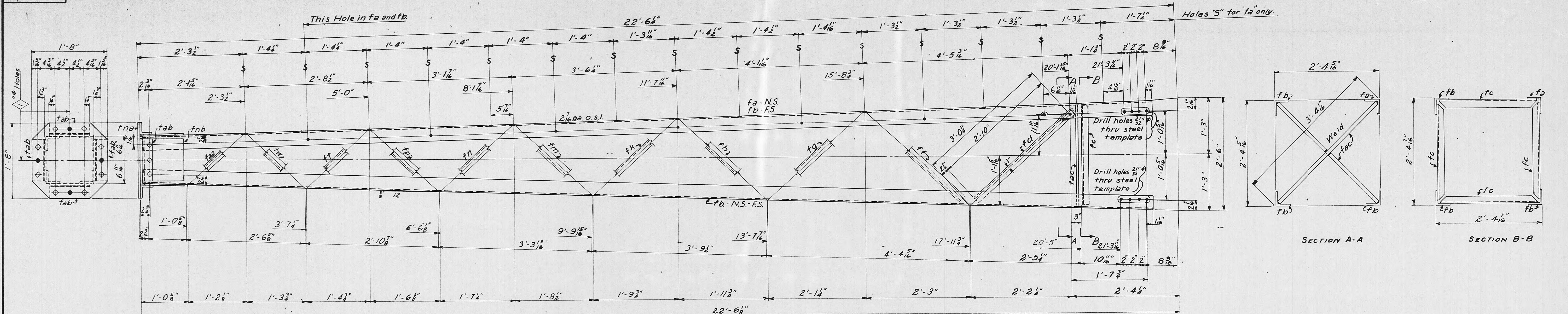
|                     |                        |                       |                     |
|---------------------|------------------------|-----------------------|---------------------|
| SCALE: 3/4" = 1'-0" | SUBMITTED: [Signature] | APPROVED: [Signature] | DATE: 10-11-37      |
| DRAWN: J.C.H.       | TRACED: J.C.H.         | CHECKED: J.C.H.       | SHEET 1 OF 3 SHEETS |
| CORRECT: A.H.S.     |                        |                       | LC-4956             |



| BILL OF MATERIAL |               |               |               |
|------------------|---------------|---------------|---------------|
| MARK             | No. of Pieces | No. of Pieces | No. of Pieces |
|                  | Reg'd. For    | Reg'd. For    | Reg'd. For    |
|                  | One           | One           | One           |
| F2               | -             | -             | 4             |
| F3               | -             | -             | 1             |
| F4               | -             | -             | 3             |
| F5               | -             | 1             | 1             |
| F6               | -             | 3             | 3             |
| F7               | 1             | 1             | 1             |
| F8               | 3             | 3             | 3             |
| F9               | -             | -             | 4             |
| F10              | -             | -             | 4             |
| F11              | -             | -             | 4             |
| F12              | 4             | 4             | 4             |
| F13              | 4             | 4             | 4             |
| F14              | 4             | 4             | 4             |
| F15              | -             | -             | 8             |
| F16              | -             | -             | 8             |
| F17              | -             | -             | 8             |
| F18              | -             | -             | 8             |
| F19              | -             | -             | 8             |
| F20              | -             | -             | 8             |
| F21              | -             | -             | 8             |
| F22              | -             | 8             | 8             |
| F23              | -             | 8             | 8             |
| F24              | -             | 8             | 8             |
| F25              | 8             | 8             | 8             |
| F26              | 8             | 8             | 8             |
| F27              | 8             | 8             | 8             |
| F28              | 8             | 8             | 8             |
| F29              | 8             | 8             | 8             |
| F30              | 8             | 8             | 8             |
| F31              | 8             | 8             | 8             |
| F32              | -             | -             | 2             |
| F33              | -             | -             | 2             |
| F34              | -             | -             | 2             |
| F35              | 2             | 2             | 2             |
| F36              | 2             | 2             | 2             |
| F37              | -             | -             | 4             |
| F38              | -             | 8             | -             |
| F42              | 3             | -             | -             |
| F43              | 1             | -             | -             |
| F44              | 8             | -             | -             |
| F45              | 8             | -             | -             |

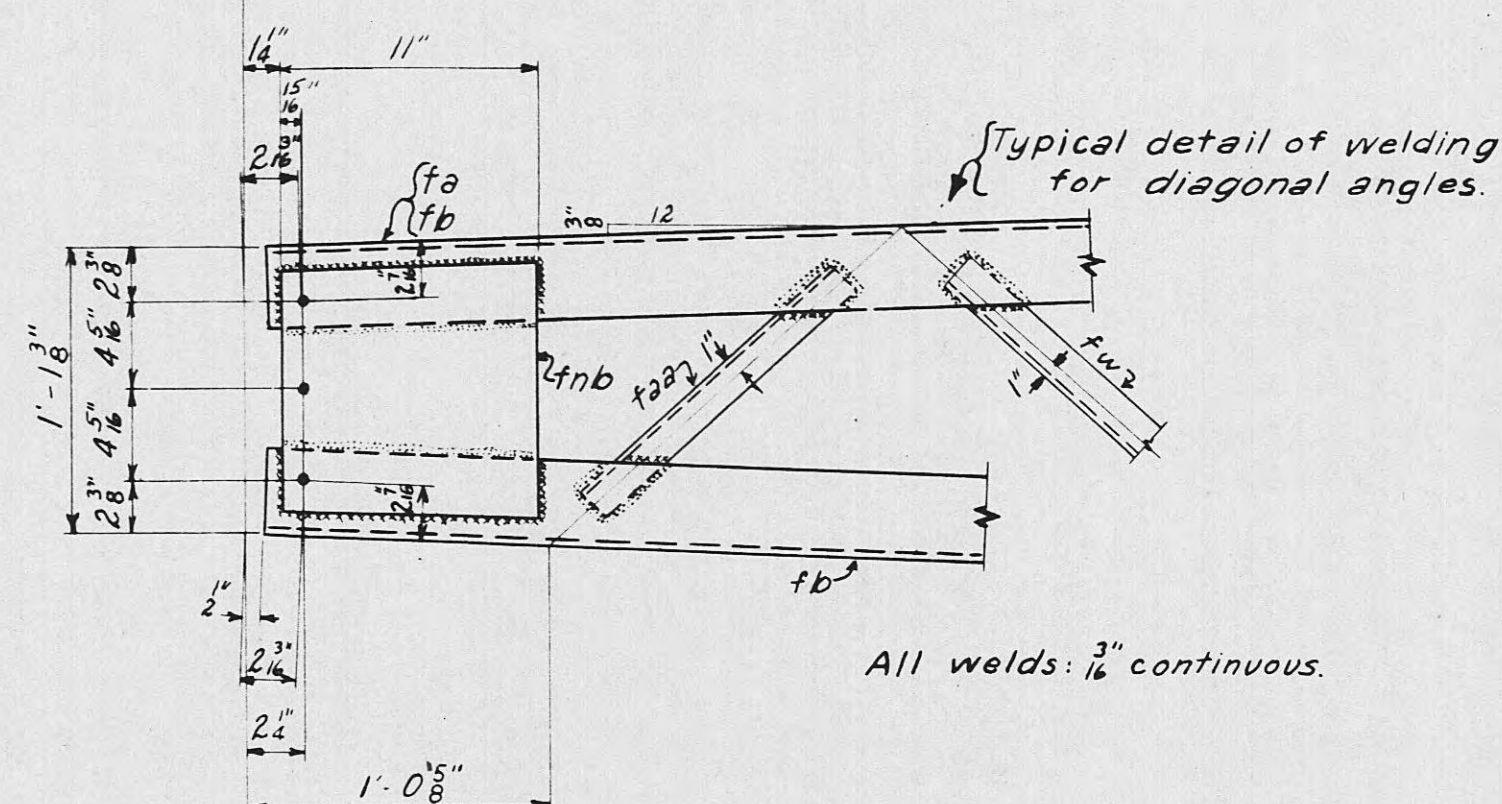
NOTES:  
Holes  $\frac{11}{16}\phi$  unless noted.  
All material H.D. Galvanized.  
All material A.S.T.M. Desig. A7 (latest date)  
Piece marks; steel stenciled before galvanizing.

|                                                                                                                 |                                 |                                                                                                                              |
|-----------------------------------------------------------------------------------------------------------------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| TENNESSEE VALLEY AUTHORITY<br>DIVISION OF POWER ENGINEERING AND CONSTRUCTION                                    |                                 |                                                                                                                              |
| SUBSTATIONS GENERAL<br>55,65& 85FT. GROUND WIRE TOWERS<br>STRUCTURAL DETAILS                                    |                                 |                                                                                                                              |
| SCALE: <i>NONE</i><br>DRAWN: <i>J.C.H.</i><br>TRACED: <i>J.C.H.</i><br>CHECKED: <i>BB</i><br>CORRECT: <i>BB</i> | SUBMITTED<br><i>[Signature]</i> | APPROVED<br><i>[Signature]</i> <i>6-28-53</i><br>DATE <i>10-11-37</i><br>SHEET <i>3</i> OF <i>3</i> SHEETS<br><i>LC-4956</i> |

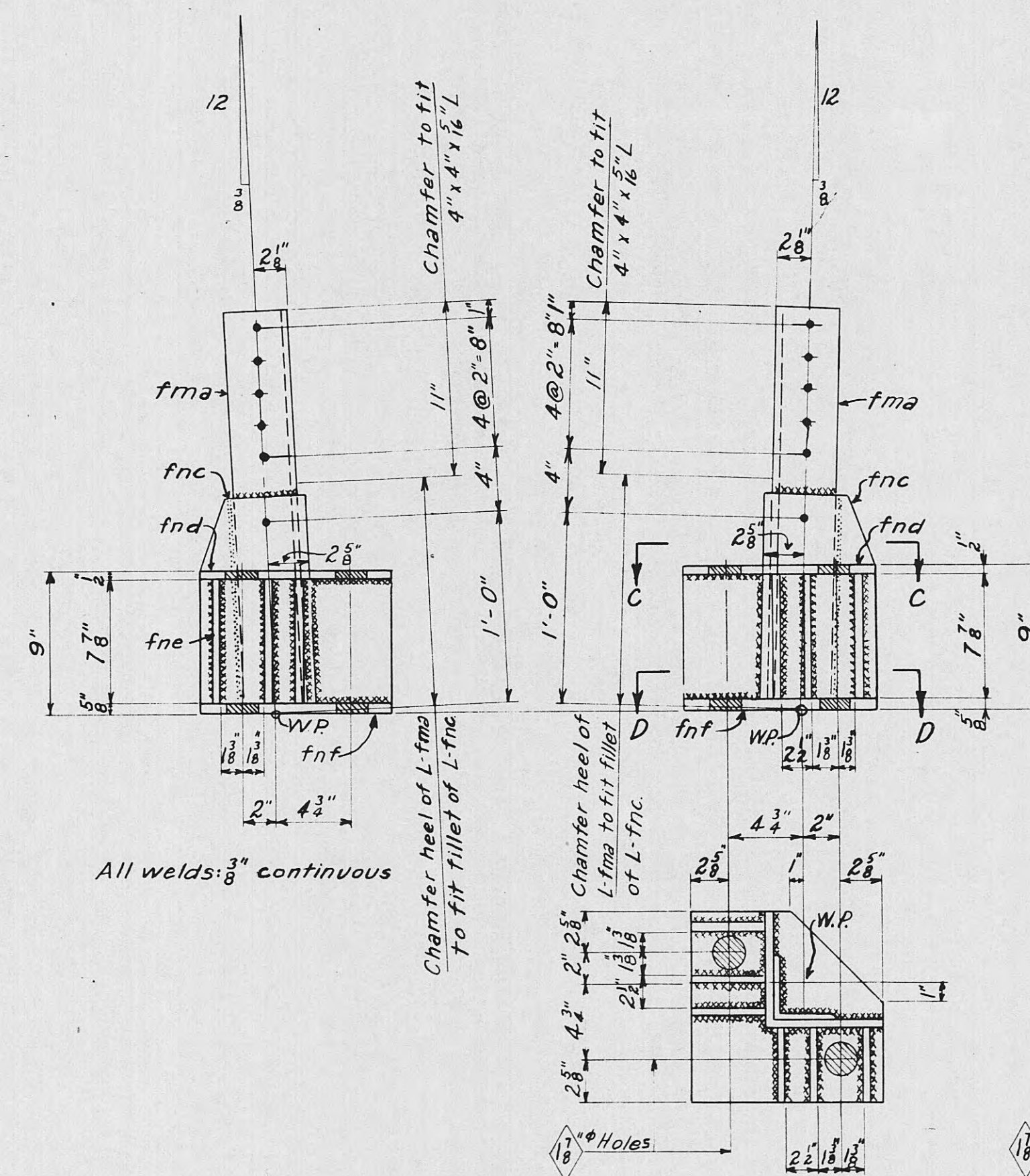


TOWER SECTION - MK. FI (FOUR FACES ALIKE)  
WELDED COMPLETE AS SHOWN

*Shop Note:*  
Care must be taken in welding section so that leg angles will remain straight and true to slope after welding is complete.

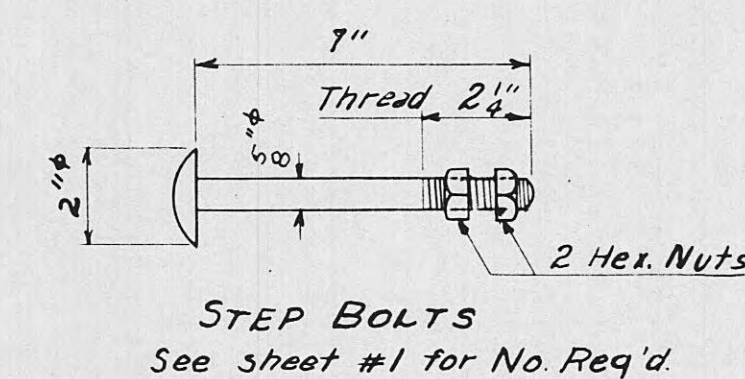


ENLARGED VIEW OF TOP  
WITH CAP PLATE AND ANGLES REMOVED

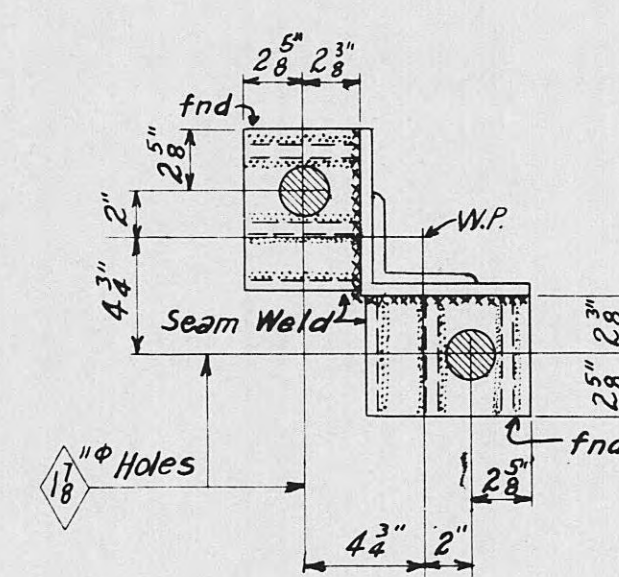


SECTION D-D

BASE - MK. F40  
WELDED COMPLETE



SECTION C-C

[illegible]

NOTES:  
Holes  $\frac{11}{16}$ "  $\phi$  unless noted.  
All material H.D. Galvanized  
All material A.S.T.M. Desig. A7 (latest date)  
Piece Marks: steel stenciled before galvanizing (Anchor Bolts excepted.)  
Bill of material includes 10% excess bolts.

BOLT - MK. F41

|       |                                |         |        |                  |                                                                                                                    |                                      |                                |                                                           |
|-------|--------------------------------|---------|--------|------------------|--------------------------------------------------------------------------------------------------------------------|--------------------------------------|--------------------------------|-----------------------------------------------------------|
| 5     | Removed drill holes note       | 6-1-66  | DTA    | PL<br>488<br>OKC | SCALE: <u>NONE</u><br>DRAWN: <u>J.C.H.</u><br>TRACED: <u>J.C.H.</u><br>CHECKED: <u>None</u><br>CORRECT: <u>AMS</u> | SUBMITTED<br><u>OK - [Signature]</u> | APPROVED<br><u>[Signature]</u> | DATE <u>10-11-37</u><br>SHEET <u>2</u> OF <u>3</u> SHEETS |
| 4     | Added Mat'l. for 55' tower.    | 9-28-49 | WHEH   |                  |                                                                                                                    |                                      |                                |                                                           |
| 3     | Traced                         | 6-17-53 | RWR    |                  |                                                                                                                    |                                      |                                |                                                           |
| 2     | Added Step Bolt Hole in flange | 7-12-49 | O.H.C. |                  |                                                                                                                    |                                      |                                |                                                           |
| 1     | Anchor Bolts                   | 12-5-38 | J.C.H. |                  |                                                                                                                    |                                      |                                |                                                           |
| ISSUE | REVISION                       | DATE    | SIG.   |                  |                                                                                                                    |                                      |                                |                                                           |
|       |                                |         |        | LC-4956          |                                                                                                                    |                                      |                                |                                                           |